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The migration story of a Kyrgyz family father - a mixed media approach

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Multimedia annotated trajectories in a visualization environment

A narrative inevitably comprises a spatial and temporal framework. Each of us associates a memorable event or story in our life with space (place) and time e.g. time of the day and /or season of the year (Ehrkamp 2005). Yet experiences of space and time differ. Specifically in relation to migration, for example Harvey (1990, 1993) argues that power shapes who migrates where, and, in particular, which rung of a migration hierarchy any particular worker has access to. In this project we want to illustrate the relationship between narratives and places by means of a short film about a non-fictitious migrant. Our proposed film will feature mixed media creating a hybrid representation at the intersection of geographic visualization, information visualization and traditional means to tell stories in films: namely, we will use maps, an animated character, video clips from a documentary, interview excerpts, word clouds and screen recordings from an eye tracking session.¹ Our approach combines qualitative and quantitative information in one interactive representation, thus presents an experimental study.

The proposed short film will convey the migration story of a Kyrgyz family's father (hereafter will be referred to as "*The Father*"). Migration is an ever-present phenomenon throughout the human history. In a recent historical period, the collapse of the Soviet Union in 1991 caused a widespread loss of jobs in the former member countries which induced migration and people migrated far from their place of origin in search of work. Some of them settled at their place of arrival, while others returned back to their place of origin after a period of time (Thieme 2012b). In our case study *The Father* leaves his country of origin and his family in search of work. After a period of work abroad, he rejoins his family which, in the meantime, has moved to another city starting a new chapter in their lives.

The migration trajectory created by the moves of *The Father* through space as well as the causes and consequences of these moves and his feelings over the course of life changing events will be presented within a map-based multimedia visualization. A portion of the story has already been integrated in a so-called "Space Time Cube (STC)" representation via multi-media annotations

¹ A 28-min documentary film featuring migrant stories in this region, titled "The Other Silk Road" (2008), was previously produced by Susan Thieme (one of the co-authors) at the Department of Geography in University of Zurich. The aim for this documentary film was to disseminate findings in a research projects regarding immigration to reach audiences who are not necessarily fellow academics (Thieme 2012a). We use video clips from this documentary.

(Russo, 2011). The STC is a three-dimensional visualization environment where the area between the x- and y-axes of the cube (xy plane) stands for the geographical space and can contain a base map which can be moved along the z-axis, while the z-axis indicates the time (Hägerstrand 1967, Kraak, 2003). In the STC implementation, the base map can be either a straightforward representation of the location or a thematic map of the migration statistics (e.g. in the form of a flow map) to display quantitative data. For the individual story, the migration trajectory of *The Father* is visualized by a so-called Space Time Path (STP) in the STC. On an STP, vertical line segments represent “stays” at a place and length of these segments indicate duration. Sloped line segments display movements and slope’s angle shows the speed of the movement of the moving object (in our case the individual). The provision of a map at the bottom of the STC facilitates viewers to perceive the starting, intermediate and end locations of *The Father's* migration. Multimedia data (interview texts, video clips, photographs) containing information about his experiences and feelings during migration are linked with branches to the STP (Figure 1).

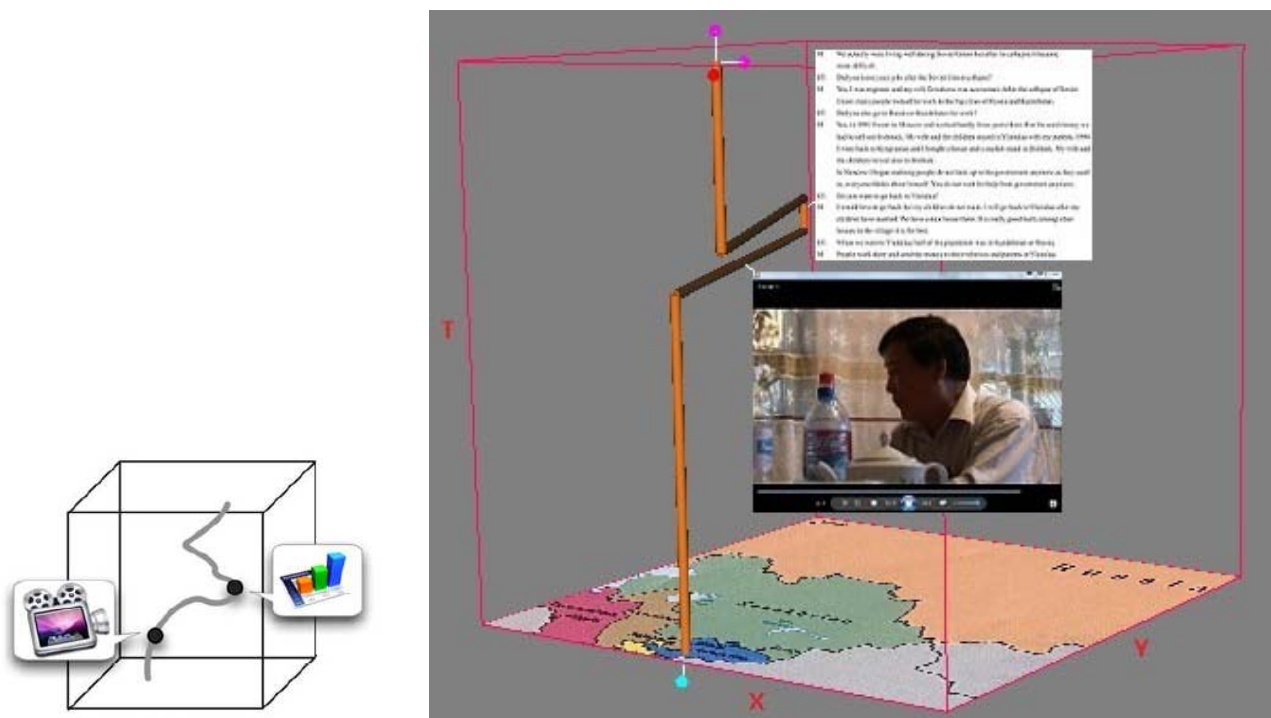


Figure 1. Left: Conceptual illustration of annotating an STP with multimedia representations (Figure from Li, Coltekin, Kraak 2010). Right: STP of *The Father* with two annotations displayed (interview script from the time and location and a video clip of him talking about his experiences)

This type of multimedia-enhanced presentation in an STC is called annotated STP (ASTP) (Li et al., 2010). In this study, the aim of the ASTP is to complement the individual's spatial movements with documentary material. While the path itself (with the aid of the provided map) gives answers to the questions about location (*where* questions), the intention of the annotations (i.e. multimedia elements) is to allow viewers to answer *why* questions as well as bringing the human aspects into the viewer's attention. Hence, the spatial and thematic features of the story are presented by the components of the Space Time Cube representation i.e. the map and multimedia elements. Together they reconstruct the migration story of the Kyrgyz father and to make the viewer aware about the geographical context of the narrative. Visual narratives like the one presented herein, promise a quick delivery of complex information which is more and more important in this age of

“information overload” (Cartwright, 1999; Cartwright and Peterson, 2007). An initial user study (with analytical tasks, semi-structured interviews and eye tracking) that was conducted with six experts indicates that the issues of qualitative nature can be effectively explored using a visualization environment built in a GIS, and the expert attitudes towards the implementation has been positive (Russo, 2011). We believe that this study, therefore, also takes a step forward for an experimental process of knowledge transfer between research communities who typically work with either qualitative or quantitative data, but not necessarily with both.

Short movie concept

While the STC implementation is ready and we have an interactive multimedia implementation with the documentary story integrated, we are at the planning stages for a short movie (See Appendix 1). We imagine opening with an animated cartoon character falling from the top of the screen into a white and empty space (see Appendix 2). The cartoon character is surprised, he does not know where he is. The only object that is there is the above presented Space Time Cube. He is curious, he goes close to this cube. First he dives his head into the cube and looks around. Afterwards he makes a step into at the position of the available path. He is in an unknown space, he looks around and notices the map, the path and the circle (annotation). He touches the circle and suddenly a window containing a message opens near him. At first he is scared and hides behind the path. After a little while he comes out from behind the path. He takes the message from the annotation. What he reads further amplifies his curiosity and captures his attention. He looks up along the path. He decides to climb the path. During the climbing he looks down once to the bottom; the geographical position is recognizable by means of the map, so he takes a note of that by saying it out loud, however he is scared about the height he has gained. So he decides to not look down anymore. When the path is not vertical he walks on it. Arrived at the position of the next annotation he is tired. He sits on the path and he touches the circle. Again a window opens and he watches a brief video of *The Father*. He is interested in the story that is narrated. So he continues his adventure through the cube along the path and takes the messages from the annotations. Arrived at the end of the path and at the same time at the top end of the cube he leaves the cube in a satisfied mood and cracks a smile. He hides his hand behind his back and he takes out a board with the word “END” on it. That is also the end of the short movie.

Additional details about the movie concept

It is supposed that emotions (fear, surprise, tiredness, satisfaction) of the cartoon character are discernible by his gestures and mimics. While walking along the path the cartoon character may also change his appearance in terms of aging (e.g. getting grey hair and wrinkles) or changing his clothes (e.g. summer and winter clothes) to attest that the story goes through time (i.e. seasons and years). By getting the map on camera from time to time the viewers should perceive the geographical context of the story. The sound of the movie may contain the noises of the cartoon character (e.g. breathing, speaking) and sounds when for example touching the circles. Windows containing texts may be read loudly by the cartoon character.

A consideration of multiple perspectives

For the described STC implementation, we have recorded eye movements of a small number of people (six experts) as they used the visualization environment. As briefly mentioned earlier, we recorded the eye movements with the intention to study the user experience. However, for the short film, we also envision that these recordings can inspire an additional dimension in telling the experience of a character from ‘his own eyes’. The eye movement recordings can be visualized via various plots (e.g. gaze plots, density maps), as well as animation/film (e.g. Figure 2). We consider using eye movement recordings to simulate the animated character’s perspective. In the most basic sense, the idea is to display the gaze points of the character to signal the audience that this is where the character is looking and with this cue we know that we are now watching the scene from the character’s perspective. We believe that mixing the gaze visualization as a metaphor for switching perspective may strengthen the storytelling aspect.

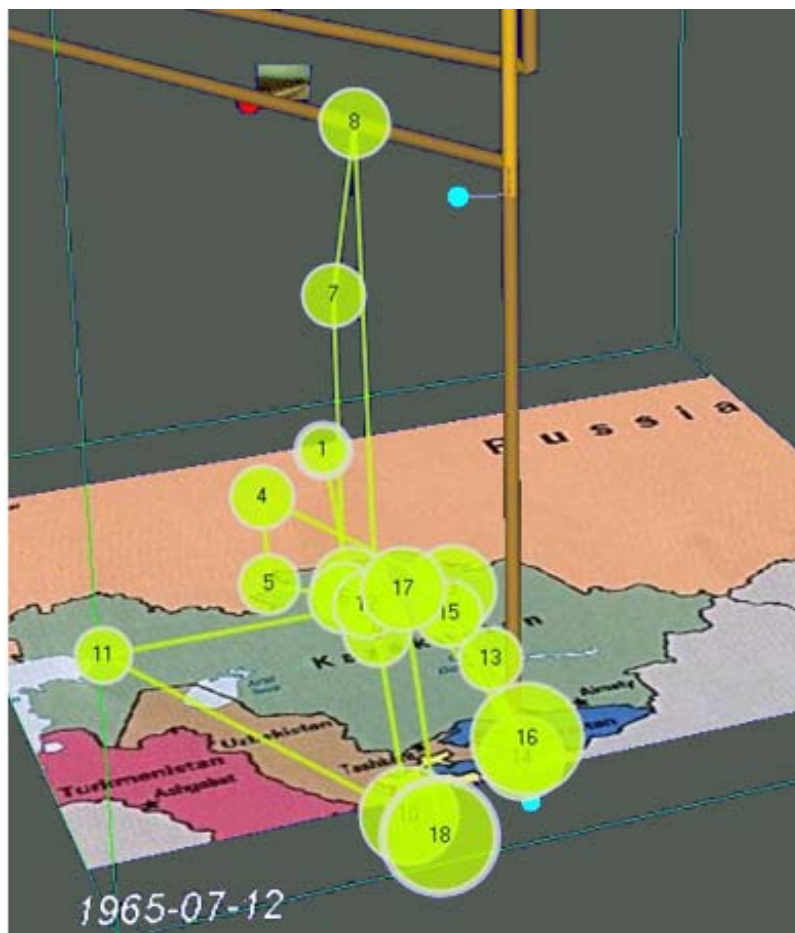


Figure 2. A gaze plot showing the viewer’s perspective. The size of the circle indicates the length of the fixations (how long the person looks at the point). The numbers indicate the sequence (in which order someone views the scene). In video format, we can use a screen recording to instantly display the gaze location and duration as the viewer moves their eyes.

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Appendix 1

Storyboard (work in progress)

Below is a first draft of a storyboard for the short film can be seen below (to be further refined).

/*

Notes are in [[double brackets]]

Scene names are underlined

Transitions are in *italics*

*/

INT. WHITESPACE

François is falling in the centre of the screen.

> *Pan down and the horizon appears at the bottom of the screen*

François completes his fall and hits the ground.

François gets up, shaken.

François looks aroundpuzzled

PAN RIGHT TO:

INT. WHITESPACE - CUBE DISTANT

[[Where is the cube in relation to François? Right or Left? Level, behind or in front?]]

François sees the cube and is surprised by it.

François walks towards the cube.

INT. WHITESPACE - CUBE CLOSE

François dives his head into the cube and looks around

CUT TO:

INT. CUBE START

Appendix 2

Animation (work in progress)

An animated character (we call him François) is being developed using the 3D animation software Poser (Figure 3). Sounds are also being developed for François's expressions and speech.

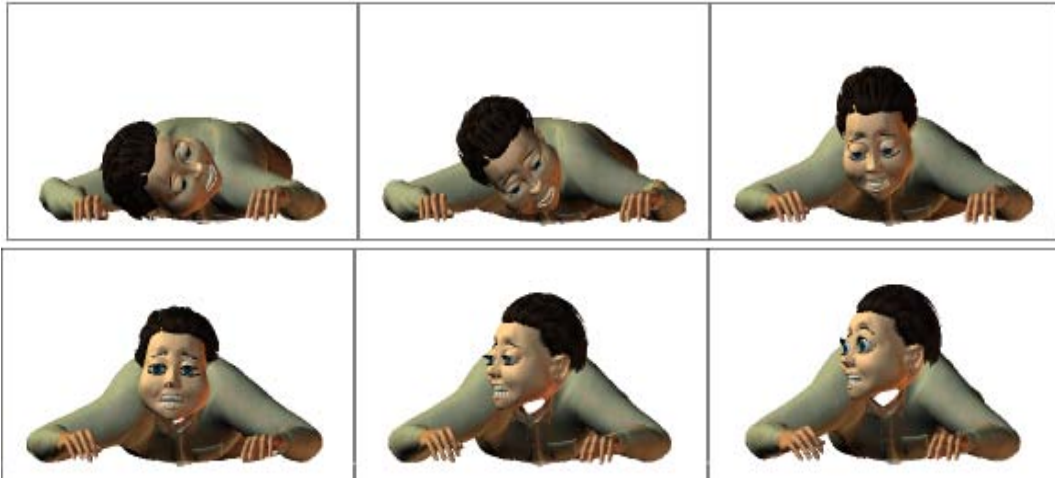


Figure 3. Screenshots displaying a few different movements of the animated character.